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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,703	06/14/2001	Heinrich Foltz		9610

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EXAMINER
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TRAN, CHUC

ART UNIT	PAPER NUMBER
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2821

MAIL DATE	DELIVERY MODE
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12/02/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/882,703	<b>Applicant(s)</b> FOLTZ ET AL.	
	<b>Examiner</b> CHUC TRAN	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-4 and 9-44 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 1,2,9-20,25-34,37-40,43 and 44 is/are allowed.
- 7) ☒ Claim(s) 3,4,21-24,35,36,41 and 42 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1, 3-8 and 20 are objected to because of the following informalities:

- claim 1, line 3, “dipole element” would be changed to - - dipole antenna element- - ;
- claim 1, line and 7, “dipole element.” would be changed - - dipole antenna element, - -;
- claim 1, line 2, “A dielectric substrate” would be changed to - - a dielectric substrate - -;
- claim 1, line 3, “Two conducting patches” would be changed to - - two conducting patches - -;
- claim 2, line 2, “the dipole antenna” would be changed to - - the dipole antenna element - -;
- claim 1, line 5, “A conducting strip” would be changed to - - a conducting strip - -;
- claim 1, line 7, “dipole element.” would be changed - - dipole element, - -;
- claim 1, line 8, “Slots cut” would be changed - - slots cut - -;
- claim 1, line 10, “A second conducting strip” would be changed - - a second conducting strip - -;
- claim 3, line 2, “A dielectric substrate” would be changed to - - a dielectric substrate - -;
- claim 3, line 3, “dipole element” would be changed to - - dipole antenna element- - ;
- claim 3, line 3, “Two conducting patches” would be changed to - - two conducting patches - -;
- claim 3, line 5, “A conducting strip” would be changed - - a second conducting strip - -;
- claim 3, line 6, “dipole element.” would be changed - - dipole element, - -;
- claim 3, line 7, “Slots cut” would be changed - - slots cut - -;

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- claim 3, line 8, “strip, and” would be changed to - - strip. - -;
- claim 4, line 2, “the dipole antenna” would be changed to - - the dipole antenna element - -;
- claims 5, 6, 7 and 8, line 1, “withdrawn” would be changed to - - cancelled - -;
- claim 14, line 17, “said driven conductor” would be changed to - - said undriven conductor - -;
- claims 20 are double claims number.

Appropriate correction is required.

3. Claims 38-39 and 41-42 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and/or cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

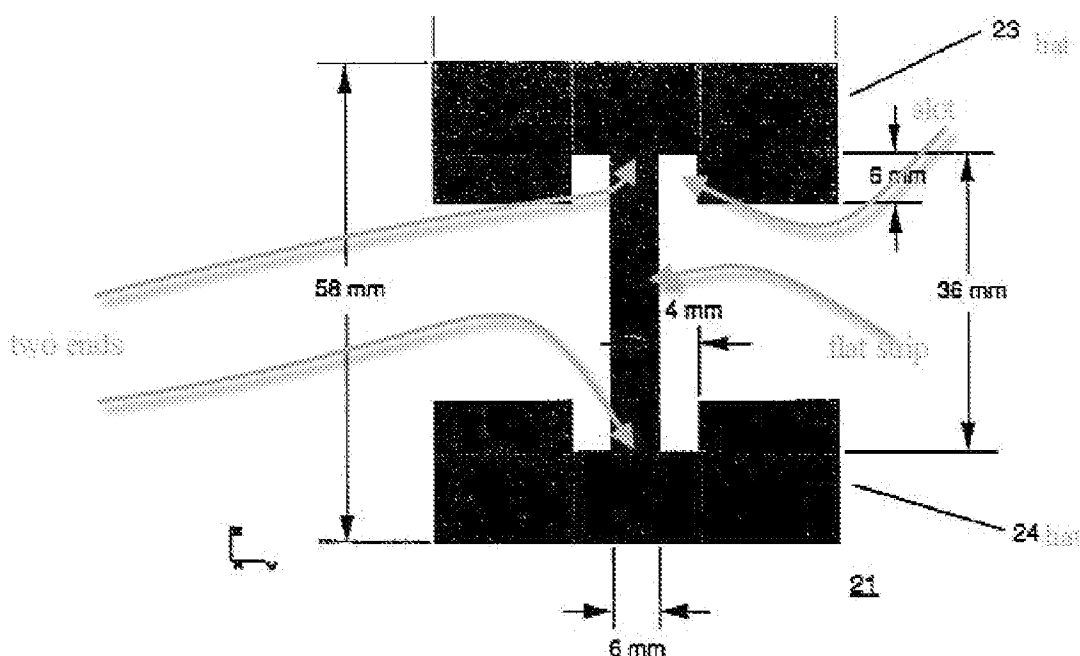
5. Claims 3 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnston et al (USP. 6,424,309).

Regarding claim 3, Johnston et al disclose a parasitic reduce size printed dipole antenna element in Fig. 9-10 and 15, comprising: a dielectric substrate (8) (Fig. 9B, Col. 5, Line 43); two

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conducting patches (sheet) (23, 24) one at each end of the dipole (Fig. 15, Col. 6, Line 11), a conducting strip (strip) (Col. 6, Line 13) narrower than the patches connected to said conducting patches (sheet) (23, 24) (See Fig. 15, below), forming a radiating part of the dipole element (Col. 3, Line 30), and a slot cut into said conducting patch (23, 24) (See Fig. 15, below).

Regarding claim 4, Johnston et al disclose that one half of the dipole antenna (21) mounted on a ground plane (Fig. 20, below, Col. 6, Line 45-49).

**FIG. 15**

Regarding claim 21, Quade disclose a reduced size printed dipole antenna element in Fig. 3 and 4, comprises: a dielectric substrate (8), said dielectric substrate having a front side (9) (Fig. 3) and a reverse side (22) (Fig. 4); and a patterned region (region of dipole element formed) on said front side (9) of said dielectric substrate (8) (Fig. 3, Col. 1, Line 46); wherein, the patterned region on the front side of said substrate forms a linear conductor (12) and loading patches (10, 11) (Fig. 3, Col. 2, Line 39); and each said loading patch is shaped (slot) to effectively extend the

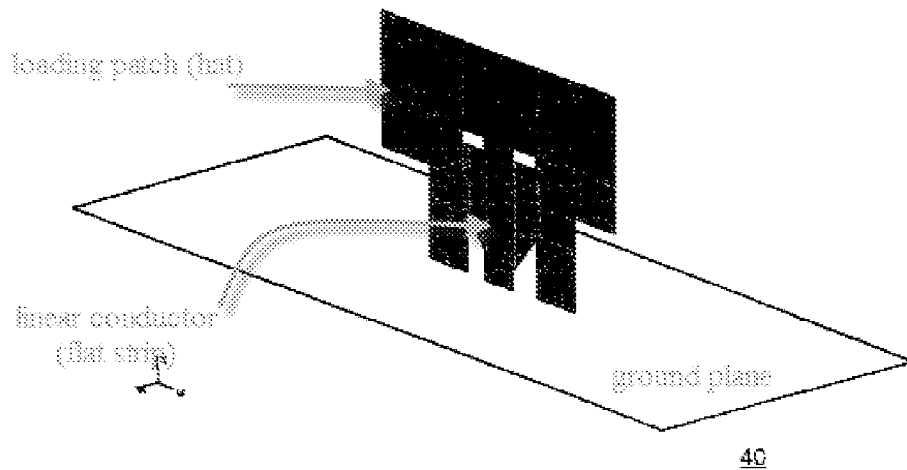
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length of said conductor (Fig. 3). However, Quade is silent on a limitation of said linear conductor having a first end and a second end. Johnston et al reference teaches in Fig. 15, said linear conductor (flat strip) having a first end and a second end (See Fig. 15 above). It would have obvious to incorporate the Johnston's teaching into the Quade's teaching for reducing the input impedance in order to improve the antenna elements.

Regarding claim 22, Ganeshmoorthy et al disclose a printed monopole antenna in Fig. 1 and 2, comprising: a dielectric substrate (11) having a front side (A) (Fig. 1) and a reverse side (B) (Fig. 2); a ground plane (12) (Fig. 1); a patterned region on front side of said dielectric substrate (printed circuit board) (Col. 1, Line 58) forms a conductor (16) having a first end (15), and a second end (Col. 2, Line 15); a loading patch (14) is connected to the first end (15) of the conductor (16) (Col. 2, Line 15); and the loading patch is shaped to effectively extend the length of the linear conductor (Col. 2, Line 20). However, Ganeshmoorthy et al is silent on a limitation of the conductor is a linear directly connected to the ground plane. Johnston et al reference teaches in Fig. 20, the linear conductor (strip tap) directly connected to the ground plane (Johnston, Fig. 20 below, Col. 6, Line 49). It would have been obvious to incorporate the Johnston's teaching into the Ganeshmoorthy's teaching for impedance matching in order to

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increase the antenna bandwidth.



**FIG. 20**

Regarding claim 23, Johnston et al disclose that said ground plane is a conducting ground plane (Johnston, Col. 6, Line 49).

Regarding claim and 24, Ganeshmoorthy et al disclose that said dielectric substrate (11) is perpendicularly mounted on said ground plane (12) (Fig. 1).

Regarding claim 35, Quade disclose a reduced size printed dipole antenna element in Fig. 3 and 4, comprises: a dielectric substrate (8), said dielectric substrate having a front side (9) (Fig. 3) and a reverse side (22) (Fig. 4); and a patterned region (region of dipole element formed) on said front side (9) of said dielectric substrate (8) (Fig. 3, Col. 1, Line 46); wherein, the patterned region on the front side of said substrate forms a linear conductor (12) and loading patches (10, 11) (Fig. 3, Col. 2, Line 39); and each said loading patch is shaped (slot) to effectively extend the length of said conductor (Fig. 3). However, Quade is silent on a limitation of said linear

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conductor having a first end and a second end. Johnston et al reference teaches in Fig. 15, said linear conductor (flat strip) having a first end and a second end (See Fig. 15 above). It would have obvious to incorporate the Johnston's teaching into the Quade's teaching for reducing the input impedance in order to improve the antenna elements.

Regarding claim 36, Ganeshmoorthy et al disclose a printed monopole antenna in Fig. 1 and 2, comprising: a dielectric substrate (11) having a front side (A) (Fig. 1) and a reverse side (B) (Fig. 2) is mounted on a ground plane (12) (Fig. 1); a patterned region on front side of said dielectric substrate (printed circuit board) (Col. 1, Line 58) forms a conductor (16) having a first end (15), and a second end (Col. 2, Line 15); a loading patch (14) is connected to the first end (15) of the conductor (16) (Col. 2, Line 15); and the loading patch is shaped to effectively extend the length of the linear conductor (Col. 2, Line 20). However, Ganeshmoorthy et al is silent on a limitation of the conductor is a linear directly connected to the ground plane. Johnston et al reference teaches in Fig. 20, the linear conductor (strip tap) directly connected to the ground plane (Johnston, Fig. 20 above, Col. 6, Line 49). It would have been obvious to incorporate the Johnston's teaching into the Ganeshmoorthy's teaching for impedance matching in order to increase the antenna bandwidth.

6. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganeshmoorthy et al and Johnston et al as applied to claims above, and further in view of Britain (USP. 6,307,524).

Regarding claims 41 and 42, Ganeshmoorthy et al and Johnston et al references teach every feature in the claimed invention excluding the Yagi-Uda Type parasitic dipole director and reflector element is reduced size. Britain reference teaches the Yagi-Uda Type parasitic dipole



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director and reflector element is reduced size (Britain, Col. 7, Line 38). It would have been obvious to incorporate the Britain's teaching into the Ganeshmoorthy's and Johnston's teaching for increasing gain in order to increase the antenna bandwidth.

***Allowable Subject Matter***

7. Claims 1-2, 9-20, 25-34 and 43-44 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

(a) a second conducting strip or undriven conductor on the reverse side of said dielectric substrate, forming a parallel strip transmission line with said conducting strip and electrically connected to said conducting patches through the use of via holes in said dielectric substrate in claims 1, 9, 14, 25, 32, 43 and 44; claims 2, 10-13, 15-20, 26-31, 33-34 and 37-40 are allowed since they are dependent on claims 1, 9, 14, 25, 32.

***Conclusion***

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUC TRAN whose telephone number is (571)272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chuc D Tran/  
Examiner, Art Unit 2821

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
December 1, 2011